REINFORCING

1. All bars to conform to CSA G30.18-M92:

   - 15M bars and larger to be grade 400
   - 10M bars and supporting rods to be grade 300 or better

2. All steel to be detailed in accordance with the current ACI Detailing Manual.

3. Reinforcement noted with "C" as C10M is to have a standard hook at one end. Length of bar indicated is exclusive of hook length.

4. Reinforcement noted with "E" as 10ME is to be epoxy-coated.

5. All reinforcing shall be held in place with proper accessories.

6. In concrete beams, bend horizontal reinforcing 24" around corners, or use extra corner bars 36" x 36".

7. All openings in concrete walls and/or slabs to have minimum 2-15M extra reinforcing all around, 1 each face, extend minimum 2'-0" pastplus additional 15M diagonal bars each face 1.5 times longer then shortest opening size or min. 20" and maximum 5'-0" in length at each corner unless noted otherwise. Maximum opening size 3'-0" wide; top of opening to be minimum 2'-0" below top of wall elevation. For all openings greater than 3'-0" contact the Engineer for further instruction. Coordinate all openings with Architectural, Electrical and Mechanical drawings.

8. Do not cut reinforcing at openings where it can be spread continuously around opening.

9. All openings in grade beams to be confirmed by the Engineer.

10. Top steel in beams shall be lapped at centre span, bottom steel shall be lapped at support.

11. All reinforcing steel shall be cleaned of all dirt, grease and other deleterious materials prior to placing.

12. All reinforcing shall be new billet deformed bars.

13. All welded wire fabric shall be transported and delivered in flat sheets.

14. Reinforcing steel supplier to confer with contractor as to desired construction joint locations and supply dowels and bar lengths to accommodate these joints.

15. Reinforcing steel supplier shall submit shop drawings for review of fabrication, sizes, dimensions, placement and splice locations.

STRUCTURAL STEEL

1. All 'W' and 'HSS' sections shall be in accordance with CAN/CSA G40.21-04 M350W, all other sections shall be in accordance with CAN/CSA G40.21-04 M300W.

2. All welding shall conform to CSA W59-03 (R2008); fabricators to be certified in accordance with CSA W47.1-09.

3. Fabrication and erection shall be in accordance with CAN/CSA S16-09, "Limit States Design of Steel Structures".

4. Unless noted otherwise, design connections for non-composite beams for factored moment shear force equal to 67% of the total beam load tabulated in the CISC handbook of steel construction.

STRUCTURAL STEEL CONT'D

5. Unless noted otherwise, design moment connections for non-composite beams for a factored moment equal to the full moment capacity of the smaller member joined.

6. Supply steel with properties noted in steel grades table below.

7. Steel erector shall be responsible for supplying and erecting all temporary bracing to provide stability for the structure as a whole, until all related structural framing is erected and completely installed.

8. Fabricator shall notify the engineer of any proposed member substitutions or changed connection details.

9. Holes required in steel sections must be approved by the engineer.

10. Provide 3/8"Ø weep holes at top and bottom of all HSS columns.

11. All beams continuous over columns shall have 2 web stiffeners on each side, the same thickness as column unless noted, but not less than 3/8".

12. No holes permitted in top of beams at columns where beams are continuous over columns, unless loss of section by holes is compensated by equal material area welded to side of flange.

13. All columns passing thru concrete shall have compressive material to isolate it from surrounding concrete.

14. All structural steel shall receive at least one coat primer to CISC/CPMA standard 1-73a 1975.

15. Use asphalt base paint (flintkote 410-02 or eq.) at columns below slab.

16. All high strength bolts to be in accordance with the latest edition of ASTM A325M.

17. Provide minimum of 2 bolts in bolted connections.

18. All bolted connections to use snug-tightened high-strength bolts unless noted on drawings.

19. The shear capacity of all shear splices shall be at least equal to the shear capacity of the smaller beam, unless noted.

20. Steel supplier is responsible for design and detailing of all structural steel connections not shown on drawings.

STRUCTURAL STEEL CONT'D

21. All miscellaneous steel not detailed on drawings, such as; stairs, railings, awnings and non-structural architectural steel shall be detailed by the steel supplier.

22. Anchor bolts shall be supplied by structural steel supplier & set by general contractor. General contractor to supply and install 1" non-shrink grout under all base plates unless noted.

23. All grout under bearing plates and base plates shall be non-metallic, non-shrink type with minimum 28 day compressive strength of 4500 PSI, installed in accordance with the specification and manufacture's recommendations.

24. Expansion anchors to be zinc-plated steel wedge type with the following design values in 30 MPa concrete:
    1/2"Ø - 2000 lbs shear, 2000 lbs pull-out
    3/4"Ø - 4000 lbs shear, 4000 lbs pull-out

25. All exposed portions of ledge angles and connections to be coated with bituminous paint.

26. Provide 3" x 3" x 1/4" angle framing around all deck openings greater than 18" x 18" unless noted.

27. All steel beams supporting masonry walls to have minimum 3/4"Ø x 12" long nelson studs welded to beam at 24" o/c unless noted otherwise on drawings.

28. Structural steel supplier shall submit shop drawings for review of fabrication, sizes, dimensions and placement. All connections not shown on drawings are to be sealed by a Professional Engineer registered in the Province of Manitoba.

MISCELLANEOUS METAL

1. Refer to architectural drawings for miscellaneous metal details.

2. All steel shall conform to CSA G40.21-04

3. Welded rebar anchors to be grade 300 weldable.

4. All exposed miscellaneous metal to be reviewed for architectural appearance as per AISC Specification for Architecturally Exposed Structural Steel.

APEGM
Certificate of Authorization
Wolfrom Engineering Ltd.
No. 1156 Expiry: April 30, 2017

0	ISSUED FOR CONSTRUCTION	2016.11.28	JCR

WOLFROM ENGINEERING LTD
CONSULTING ENGINEERS
345 WARDLAW AVENUE
WINNIPEG,CANADA R3L 0L5
(204)452-0041 FAX:284-8680
E-Mail: info@wolfromeng.com

DATE: 11/28/16

SCALE:

JOB TITLE: 1919 Monument
Winnipeg, Manitoba

FILE NO.: W16124

DRAWING NO.: S-2

SEAL